

25/10/13

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COLLEGE OF ENGINEERING GUINDY
ANNA UNIVERSITY, CHENNAI -25

B.E. (Full Time) DEGREE END SEMESTER EXAMINATIONS, OCT/NOV 2013

GEOINFORMATICS ENGINEERING BRANCH

SECOND SEMESTER - (REGULATIONS 2012)

GI 8202 – PLANE SURVEYING

Time: 3 Hours

Maximum Marks: 100

INSTRUCTIONS:

1. Answer ALL questions under Part-A and B respectively
2. Assume suitable data wherever necessary
3. Draw neat sketches wherever desirable

PART - A (10 x 2 = 20 Marks)

1. List the different tapes available in the market and which one will you prefer and why?
2. The length of AB measured with a 20 metre chain was found to be 620.5 m.
Calculate the true length of the line if (i) the chain was 10 cm long and
(ii) the chain was 10 cm short.
3. The magnetic bearing of a line AB is S 38°30' W. Calculate the true bearing
if the magnetic declination is (i) 2°30' W and (ii) 4°30' E.
4. Mention the demerits of plane table surveying over the other methods of surveying.
5. List the different theodolites available in the market and which one will you prefer and why?
6. Why an Anallactic lens is used in the Theodolite?
7. State the importance of setting out works.
8. Mention the uses of the various curves.
9. How will you determine the Mean Sea Level?
10. What is Gyro theodolite? What are its uses?

PART - B (5x16 = 80Marks)

11. i. Explain the use and working of a line ranger. (6)
ii. A and B are two Points on the opposite sides of a pond. The surveyor establishes a line AC clear of the pond such that B is visible from C. He also establishes another point D on the line CB produced so that the line AD is also clear of the pond. If the distances AC, CB, BD and DA were measured and found to be 300m, 150m, 175m and 250m respectively. Determine the distance AB. (10)

P.T.O.

12. a. i. Write about the transducers used in the modern Total station equipment. (10)
ii. Describe the reflector used in Electro-optical Total station equipment. (6)

(OR)

12. b. i. List the power sources available for activating the modern surveying equipment.
Which one you will prefer? and explain. (6)
ii. Discuss about the different methods of phase measurement. (10)

13. a. i. Explain in detail about the electromagnetic wave propagation at lower and higher frequencies. (8)
ii. An Electro-optical Total station with the carrier wavelength of 910 nm has a modulation frequency of 24.5 MHz. Compute the modulated wavelength of the light at a temperature of 27°C and an atmospheric pressure of 755.1mmHg. (8)

(OR)

13. b. i. What is second velocity correction? Deduce an expression for the same. (12)
ii. Compute the second velocity correction to be applied to the observed distance of 100Km by a Microwave Total Station. (4)

14. a. i. Outline the basic measuring principle of an Electro-Optical Total Station. (4)
ii. Discuss the different sources of error that are to be taken in to account while making measurements with Electro-optical Distance Measuring System. (12)

(OR)

14. b. i. List the different sources of errors that may arise while measuring the distance with the Micro Wave total station equipment and explain the ground swing. (4)
ii. An electro-optical total station was designed to emit the light with the wavelength of 885nm and modulation wavelength of 40m and the modulation frequency of 7.492700MHz. Compute the correction to be applied to the measured distance to the variation of modulation frequency at an atmospheric temperature of 13.5°C and an atmospheric pressure of 739mmHg. (12)

15. a. Explain how the area of the land parcel is obtained with the help of total station equipment and its accessories. (16)

(OR)

15. b. Discuss in detail, about the traversing with the help of total station equipment and its accessories. (16)